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ABSTRACT

In an extension of an earlier study by Cline, Croft, and Courrier (1973) the effects of amount of television viewing and preference for televised violence upon autonomic responses to violent and nonviolent videotaped movie sequences were examined. Thirty-six male undergraduates watched a six-minute portion of a boxing film and a six-minute portion of a nonviolent sporting events program. Heart rate and skin resistance were monitored and the highest, lowest, and average skin resistance and the number of skin resistance responses for each of the 12 30-second segments of each film were obtained. Subjects were divided into the following four groups on the basis of pre-experimental questionnaires and logs they had kept of their TV viewing behavior: high/low viewing time x high/low preference for violent programming. The results supported the study's hypotheses: heart rate and average skin resistance differed between high and low viewing time and viewing preference groups, and the effects were stronger in response to the violent than to the nonviolent film. For the boxing film, both heart rate and average skin resistance were greater for low viewing time and high preference for violence subjects. The directions of the findings are interpreted within a habituation-sensitization inverted "U" model. The implications of the findings for human aggression and their relationship to aggression research done by experimental social psychologists is discussed. (Author)

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Habituation and Sensitization to Filmed Violence

Midwestern Psychological Association, Chicago, 1976

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The role of televised violence in the relationship between aggression and arousal has important implications for aggression researchers. For example, Geen and O'Neal (1969) found that subjects who watched a violent film and were stimulated by loud noise exhibited a higher level of aggression than those subjects who were not stimulated by the noise. Zillmann (1971) found that male subjects showed greater arousal and higher levels of aggression to an erotic film than to a violent one. Up untill now, little research has addressed itself to the effects of exposure to violent stimuli upon violence-accompanied arousal.

One study that was addressed to the effects of exposure to violent television on arousal levels was that of Cline, Croft, & Courrier (1973). They selected, from a population of five- to twelve- year old children, those who reported either very high or very low overall viewing times. Skin conductance and blood volume were monitored as each subject watched a film composed of

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violent, non-violent, and humorous segments. Their results revealed that children who had a previous history of high exposure to television showed less of an increase in skin resistance responses to the violent segments than the low exposure subjects. No differences were found for arousal to nonviolent segments. Cline and his associates concluded that a past history of high exposure to violent programming may lead to habituation to filmed violence.

Even the most pessimistic critic of the public's TV-watching behavior would concede that a certain amount of its viewing is selective. People have preferences for what they watch. Thus an interesting and important variable to examine, in addition to viewing time, is an individual's programming preferences. The chronic changes in physiological arousal measures that appear to result from overall exposure to television may also be related to either an individual's selective viewing or to his attitude toward the violent scenes in the presence of which his responses are measured. The present study was an attempt to investigate the influence of these two variables, overall exposure and programming preferences, on arousal to violent and nonviolent films.

Method

Subjects

Subjects were 36 male introductory psychology students who received extra credit toward their grades for their participation in the study.

Apparatus

The subjects' skin resistance and heart rate were recorded on two channels of a Grass Model 7 polygraph. Beckman biopotential electrodes, electrolyte gel, and procedures were used. Films were presented on a Concord videotape closed system.

Procedure

At the beginning of the Semester potential subjects were called to a meeting in which the general course of the experiment was outlined. The experiment was described as being concerned with television preferences and behavior in general. No mention was made of violent programming. Those individuals not wishing to participate were released from the study. The remainder of the subjects then filled out questionnaires and rating scales concerning the amount of television they watched and the kinds of shows they enjoyed. Included in this questionnaire were ratings of general show categories, such as westerns, college football, and police shows. These ratings were done on 50-point scales

anchored by "interesting-not interesting," "violent-not violent," and "active-passive."

For the next 4 weeks, subjects were provided forms on which they kept a diary of their television viewing and of movies seen at local theatres. These diaries were collected weekly.

The final phase of the study consisted of monitoring each S's psychophysiological activity as he watched a violent and a non-violent film. The order of film presentation was counterbalanced across subjects.

When the subject arrived at the laboratory, he was told that in this phase of the study we were interested in how the body reacts while watching TV. After the electrodes were placed for skin resistance and EKG, the subject was seated in an electically shielded, noise attenuated booth. Headphones were placed on the subject's head and adjusted for comfort. Through a window in the booth, the subject could see the television set on which the videotapes were played. He was cautioned to keep his movements to a minimum once he was comfortable, and was told that it would take a few minutes to make adjustments on the polygraph. After calibration and a 5 minute baseline period, the subject was told that the first film would start in 2 minutes. The second film was presented 30 seconds after the first film had ended.

Each film was approximately 6 minutes long. The violent film was a boxing sequence from the movie Champion which has been used in other aggression research, including the work on

desensitization to violent films by Cline, et al. mentioned earlier.

The non-violent film was a sequence from a television production called The Big Moment, consisting of exciting, but non-violent, sporting events. After the second film the subject was disconnected from the polygraph, fully debriefed, given his extra credit, and dismissed.

Results

Subjects were assigned to one of four cells of a 2 X 2 design on the basis of measures of their past exposure to television and their expressions of preference for violent programming. The past exposure, or viewing time, variable was constructed by performing an approximately median split on the average number of hours of television the subjects watched per week, as reported in their diaries. Similarly, preference for violence was estimated by averaging each subject's self report of enjoyment of four types of shows on 50-point scales--"adult westerns," "traditional 'shoot-em-up' westerns," "police and detective shows," and "war movies." An approximately median split was also performed on these scores. These two independent variables were found to be uncorrelated for the present sample, r=.16.

The dependent measures used in this data analysis were heart rate, skin resistance responses, and high, low, and average skin resistance. The high, low, and average skin resistance measures were the highest, lowest, and average resistance measures

elicited by the subject within each of 12 30-second periods. Each of these five dependent measures were adjusted for their pre-film basal levels and averaged within films over the 12 30-second periods.

Separate ANOVAs were computed for each of the five dependent measures in a 2 X 2 X 2 design of high/low viewing time by high high/low preference for violence and the repeated factor Film. No significant results were found for the high and low skin resistance measures and skin resistance responses. A two-way viewing time by movie interaction and a viewing time main effect were found for average skin resistance. High viewing time subjects showed lower skin resistance than low viewing time subjects. The locus of this effect was entirely within Champion, in which it was significant. Figure 1 illustrates these and the following results. The heart rate ANOVA produced significant viewing time by movie and preference for violence by movie interactions. Marginally significant viewing time and preference for violence main effects were also found. Examination of the simple main effects of viewing time and preference for violence indicated that each were significant for Champion but neither was significant for The Big Moment. Thus, low viewing time subjects and high preference for violence subjects maintained a greater heart rate during Champion than high viewing time subjects and low preference for violence subjects. Duncan Multiple Range

tests computed for heart rate and average skin resistance measures are presented in Table 1.

Discussion

The overall pattern of results found in this study tend only partially to replicate Cline, et al. Amount of past exposure to television had a differential effect upon indices of physiological states in response to violent but not to nonviolent stimuli. In addition to the variable of viewing time, used by Cline, et al. the present study found effects of an attitudinal variable, again in response to violent but not to nonviolent stimuli. This attitudinal variable, liking or preference for violent programming, was found to be uncorrelated with semi-objective measures of actual viewing of highly violent and highly nonviolent programs derived from the subjects' diaries.

A less general comparison of the present study to that of Cline, et al. must begin with our negative findings for skin resistance responses coupled with our favorable findings for heart rate and average skin resistance. Their use of discreet segments of Champion and a physiological measure highly responsive to momentary changes in stimuli and our use of 6 minute averages and less immediately responsive measures may account for the different loci of the physiological effects in the two studies. Another difference between the studies lies in the direction of the viewing time effects. While the effects of viewing time on heart rate replicate Cline, et al., the effect of

average skin resistance is in the opposite direction. Common sense notions would equate increased heart rate and decreased skin resistance as indices of arousal. Much psychophysiological research, however, has cast doubt upon such generalizations. This problem is complicated by one of causality. Perhaps various kinds of arousal to violent and nonviolent television programming are differentially reinforcing, leading to favorable and unfavorable attitudes and to increased or decreased exposure.

A major difference between this study and that of Cline, et al. concerns the relative difference in viewing time between their high and low exposure groups. Cline, et al.'s high exposure subjects watched television on the average of 42.0 hours per week, while the high exposure subjects in the present study averaged 14.5 hours per week. Average exposures of the two studies' low viewing time groups were comparable, about 4.0 hours per week. This difference may account for our failure to replicate Cline, et al.'s habituation of skin resistance responses for high exposure subjects. Possibly, arousal and viewing time are related in a curvilinear, inverted "U," fashion, with increases in viewing time associated with increased arousal only up to some optimal level of viewing time. High exposure subjects in the present study are perhaps still on the increasing slope of the "U" and thus still react with arousal to television viewing. However, the subjects in Cline, et al.'s study may have passed the mid-point, and are on the side of the "U" where

increased exposure leads to decreases in arousal. Further exposure for them would lead to habituation of the skin resistance response.

The preference variable selected for in the present study may provide some insight into the processes that take place while the subject views the violent show. Elliot (1969) has proposed that skin resistance and heart rate are sensitive to different attributes of a stimulus. Skin resistance is viewed as sensitive to collative properties, such as novelty, complexity, and uncertainty, while heart rate is associated with the initiation of responses. According to this analysis, the low violence preference subjects, who show a greater decrease in skin resistance than the high preference subjects, may be reacting to the novelty of the violent film. Filmed violence is not something to which they expose themselves very often. The increase in heart rate experienced by high preference for violence subjects to the violent film may reflect an increase in readiness for aggressive behavior. It would seem that future research should investigate a wider range of both exposure to television and program preferences in order to test the validity of these analyses.

To the extent that increased arousal leads to increased aggressive behavior, past viewing history may act as an intervening variable in the arousal-aggression relationship. As we have seen, past viewing history may either increase or depress

the arousal level produced by a violent show. This effect may be important in our understanding of the behavioral effects of television violence.

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Table 1

Duncan Multiple Range Tests for Heart Rate and Average Skin Resistance[1]

	Heart Rate[2]			
	Film			
	"The Big Moment"		"Champion"	
Preference for Violence	Viewing Time			
	High	Low	High	Low
High	.99a	.69ab	.86a	1.48a
Low	-.32b	1.03a	-1.54	.85a
	Average Skin Resistance[3]			
High	-10.85b	-5.84ab	-26.02b	11.52a
Low	-8.33ab	-8.81ab	-22.51b	-4.79b

1. Means with identical subscripts are not different at the .05 level.

2. Table entries are mean change in heart rate (beats per minute) from baseline for a 30-second period.

3. Table entries are mean change in average skin resistance (1 K-ohm units) from baseline.

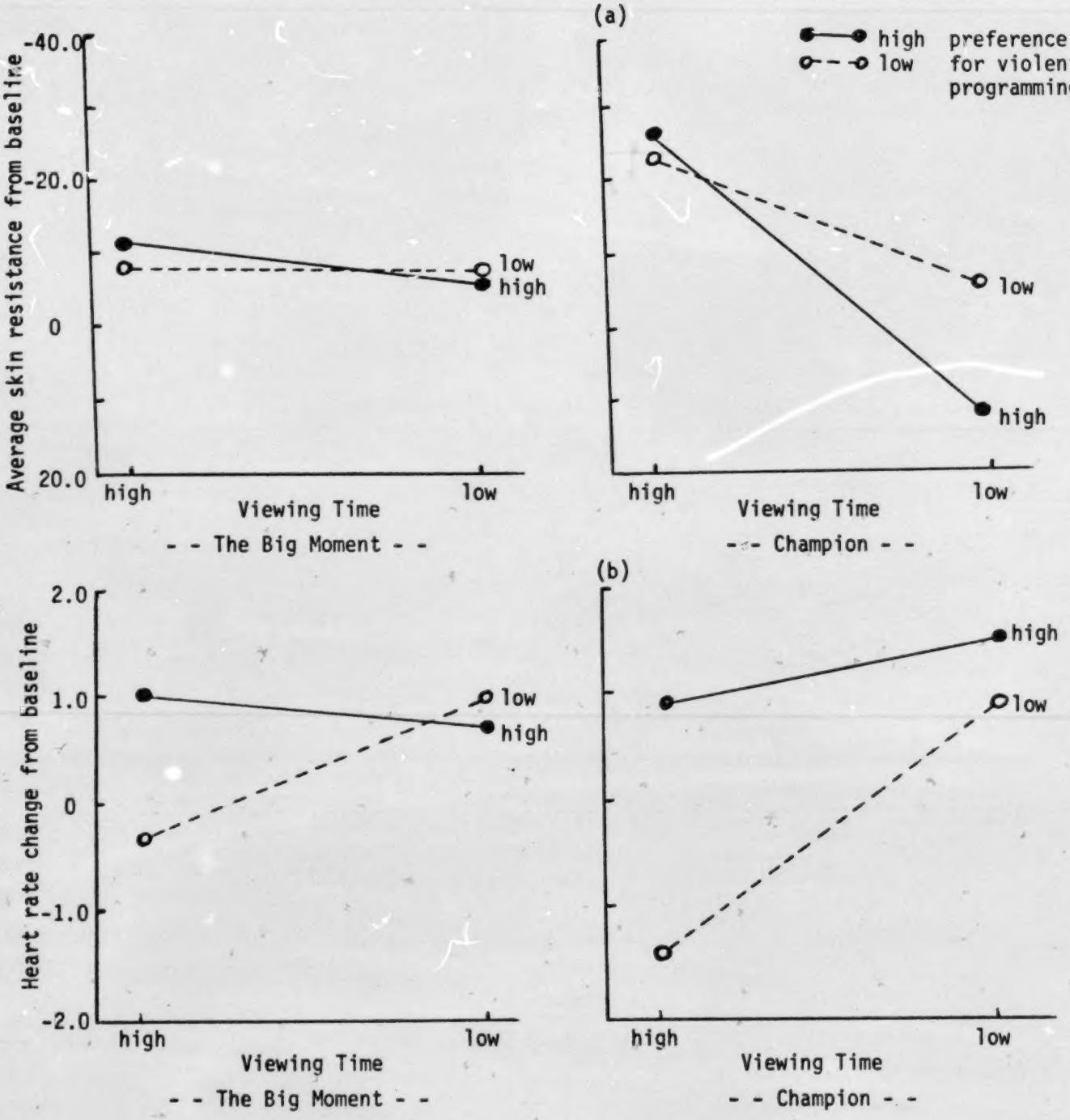

Figure 1. Average skin resistance (a) and heart rate (b) differences from baseline as functions of Viewing Time and Preference for Violent Programming.